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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,280	02/05/2001	Masato Yonezawa	07977/264001/US4594	3403

7590 08/18/2003

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EXAMINER
ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 08/18/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/777,280	YONEZAWA ET AL.	
	Examiner	Art Unit	
	Luz L. Alejandro	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *13-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown et al., U.S. Patent 5,314,539.

Brown et al. shows the invention as claimed including an apparatus comprising: a plurality of cylindrical rollers 11, 13, 18, arranged along an arc wherein a center axis of the plurality of cylindrical rollers run parallel to each other (see fig. 7); a flexible substrate M passing along said plurality of cylindrical rollers, wherein said flexible substrate is curved so that said substrate has a concave surface in contact with said plurality of cylindrical rollers and a convex surface opposite to said concave surface, and an electrode opposed to said plurality of cylindrical rollers with said flexible substrate disposed therebetween (see col. 6, lines 26-33).

With respect to the above plasma apparatus being a plasma CVD apparatus, such limitation is directed to a method limitation instead of an apparatus limitation, and since an apparatus is being claimed as the instant invention the method teachings are not considered to be the matter at hand since a variety of methods can be done in the apparatus. The method limitations are viewed as intended uses that do not further limit and therefore do not patentably distinguish the claimed invention. The apparatus of

Brown et al. is capable of performing different plasma processes including chemical vapor deposition.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al., U.S. Patent 5,314,539 in view of the Admitted prior art and further in view of Mislano et al., U.S. Patent 5,462,602.

Brown et al. shows the invention substantially as claimed including a conveyor device for a flexible substrate M, said conveyor device comprising: a conveying means for continuously conveying a flexible substrate from one end to the other end; a plurality

of cylindrical rollers 11, 13, 18, being provided between the one end and the other end along an arc with a radius R (see fig. 7); wherein center axes of the plurality of cylindrical rollers run parallel to each other; and a mechanism 10 for conveying the flexible substrate while the substrate is in contact with each of the plurality of cylindrical rollers (see col. 7-line 10 to col. 8-line 64, and Fig. 7). Furthermore, Brown et al. also discloses a vacuum chamber 3 and an introducing means G for introducing a gas into the vacuum chamber (see col. 11-line 60 to col. 12-line 35); a gas evacuation means 49; and a energy supply means 52 for supplying an energy in the form of an electromagnetic wave to make a plasma from the gas (see col. 12, lines 42-46). Also, note that plasma electrode 53 can be connected to a RF power supply which will initiate an electromagnetic wave (see col. 13, lines 8-14).

Brown et al. lacks anticipation of a ground electrode in contact with each of the plurality of cylindrical rollers, and opposing electrode opposing the ground electrode, wherein the flexible substrate is located between the ground electrode and the opposing electrode, the plurality of cylindrical rollers being a heater, and the radius of the arc being between 0.5-10 meters.

The Admitted prior art (see fig. 1) discloses a grounded electrode 108 with a heater embedded therein, an opposing electrode 109 opposing the ground electrode and a flexible substrate 101 located between the ground electrode and the opposing electrode (see newly added paragraph beginning at page 2-line 3 of the specification). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Brown et al. so as to include

the plasma apparatus structure disclosed by the Admitted prior art including a parallel electrode structure because such structure allows for the suitable plasma treatment of long substrates.

Regarding the cylindrical rollers being heaters, Mislano et al. discloses using a cylindrical roller as a heater to control the temperature of the substrate (see fig. 2 and col. 4-line 32-39). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Brown et al. modified by the Admitted prior art so as to incorporate the cylindrical rollers with heaters because this will allow for improved controllability of processes conducted within the apparatus.

Regarding the radius of the arc, absent a showing of unexpected results, the relative radius of the arc would be a function of routine experimentation and would not lend patentability to the claimed invention. Moreover, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the radius of the arc as claimed because in such a way a smaller radius would reduce the size of the overall apparatus thus reducing the amount of occupied space, and a larger radius would allow for more processing to be conducted in the apparatus which would lead to higher quality products with increased throughputs.

With respect to the above plasma apparatus being a plasma CVD apparatus, such limitation is directed to a method limitation instead of an apparatus limitation, and since an apparatus is being claimed as the instant invention the method teachings are not considered to be the matter at hand since a variety of methods can be done in the

apparatus. The method limitations are viewed as intended uses that do not further limit and therefore do not patentably distinguish the claimed invention. The apparatus of Brown et al. is capable of performing different plasma processes including chemical vapor deposition.

Concerning the substrate being in contact with each of the plurality of cylindrical rollers with a wrap angle kept positive to create a force in a direction pressing the flexible substrate against the plurality of cylindrical rollers, note that the apparatus of Brown et al. meets this limitation since the arc formed by the substrate follows the same general substrate pattern as in the invention.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted prior art in view of Brown et al., U.S. Patent 5,314,539 and further in view of Mislano et al., U.S. Patent 5,462,602.

The admitted prior art shows the invention substantially as claimed including a CVD apparatus having a conveyor device for a flexible substrate, said conveyor device comprising: a conveying means for continuously conveying a flexible substrate from one end to the other end; a grounded electrode 108/201 with a heater embedded therein, an electrode 109/202 opposing the ground electrode and a flexible substrate 101/204 located between the ground electrode and the opposing electrode (see newly added paragraph beginning at page 2-line 3 of the specification, and figs. 1 and 2A and their descriptions). Furthermore, it is inherent that the apparatus of the admitted prior art will further comprise an introducing means for introducing a gas into the vacuum chamber,

a gas evacuation means, and a energy supply means for supplying an energy to make a plasma from the gas.

The admitted prior art does not expressly disclose a plurality of cylindrical rollers being provided between the one end and the other end along an arc with a radius R, wherein center axes of the plurality of cylindrical rollers run parallel to each other, the plurality of cylindrical rollers being a heater, and the radius of the arc being between 0.5-10 meters.

Brown et al. discloses an apparatus comprising a conveyor device for a flexible substrate and wherein the substrate is transported by a plurality of cylindrical rollers 11, 13, 18, being provided between the one end and the other end along an arc with a radius R (see fig. 7); wherein center axes of the plurality of cylindrical rollers run parallel to each other; and a mechanism 10 for conveying the flexible substrate while the substrate is in contact with each of the plurality of cylindrical rollers (see col. 7-line 10 to col. 8-line 64, and Fig. 7 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of the Admitted prior art as to further include the plurality of cylindrical rollers provided between the one end and the other end along an arc with a radius R because this permits satisfactory steering of the substrate material through the chamber.

Regarding the cylindrical rollers being heaters, Mislano et al. discloses using a cylindrical roller as a heater to control the temperature of the substrate (see fig. 2 and col. 4-line 32-39). In view of this disclosure, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to modify the apparatus of the Admitted prior art modified by Brown et al., so as to incorporate the cylindrical rollers with heaters because this will allow for improved controllability of processes conducted within the apparatus.

Regarding the radius of the arc, absent a showing of unexpected results, the relative radius of the arc would be a function of routine experimentation and would not lend patentability to the claimed invention. Moreover, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the radius of the arc as claimed because in such a way a smaller radius would reduce the size of the overall apparatus thus reducing the amount of occupied space, and a larger radius would allow for more processing to be conducted in the apparatus which would lead to higher quality products with increased throughputs.

Concerning the substrate being in contact with each of the plurality of cylindrical rollers with a wrap angle kept positive to create a force in a direction pressing the flexible substrate against the plurality of cylindrical rollers, note that the apparatus of the Admitted prior art modified by Brown et al. meets this limitation since the arc that will be formed by the substrate follows the same general substrate pattern as in the invention.

Response to Arguments

Applicant's arguments filed 6/11/03 have been fully considered but they are not persuasive.

Applicant argues that the Brown et al. reference fails to show "a flexible substrate passing along said plurality of cylindrical rollers wherein said flexible substrate is curved so that said substrate has a concave surface in contact with said plurality of cylindrical rollers". However, as clearly shown by Brown et al. in fig. 7, the uppermost wheels at opposing sides of the apparatus are in contact with the concave surface of the substrate.

Concerning applicant's contention that the limitation "wherein the substrate is in contact with each of the plurality of cylindrical rollers with a wrap angle kept positive to create a force in a direction pressing the flexible substrate against the plurality of cylindrical rollers" is not shown by the references, it is clear from fig. 7 of Brown et al. that the wrap angle contacting the cylindrical rollers is positive similarly to the instant application. Furthermore, denoting an angle as positive or negative is arbitrary since a 270 degree angle can also be considered a -90 degree angle.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivations to combine the references are clearly laid out in the rejections mailed 2-10-03.

Regarding applicant's alleged advantages with respect to the radius of the arc, attorney's arguments cannot take the place of evidence in the record.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 703-305-4545. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Luz L. Alejandro
Primary Examiner
Art Unit 1763

August 15, 2003